

CLAIMS

What is claimed is:

- [c1] 1. A method for a computing system of an organization to provide information about airline tickets to customers by using predictive pricing that is based on historical airline ticket prices, the method comprising:
- retrieving information about prices for airlines tickets that were previously offered to customers for multiple airline flights, each of the previously offered airline ticket prices specified by an airline ticket provider unrelated to the organization;
 - for each of the multiple airline flights, automatically determining pricing factors for the airline flight that are used to determine prices for the airline flight by the unrelated airline ticket provider for the airline flight, by
 - identifying from the retrieved airline ticket price information multiple previously offered prices for airline tickets for the airline flight; and
 - analyzing the identified previously offered airline ticket prices to detect the pricing factors for the airline flight, the pricing factors corresponding to changes in the identified previously offered airline ticket prices; and
 - after the automatic determining of the pricing factors for the airline flights, and for each of multiple requests that are each from a customer for information about airline flights, automatically advising the customer, by
 - identifying one or more of the multiple airline flights that each satisfy criteria in the request from the customer;
 - retrieving information about current prices offered for the identified airline flights that are specified by the unrelated airline ticket providers for the airline flights;
 - predicting future prices that will be offered for the identified airline flights by the unrelated airline ticket providers for those flights, the predicting based at least in part on the determined pricing factors for those airline flights;

predicting an optimal time to purchase airline tickets for each of the identified airline flights based at least in part on the predicted future offered prices and the current offered prices; and

using the predicted optimal airline ticket purchase times to advise the customer related to a current purchase of one or more airline tickets.

[c2] 2. The method of claim 1 including automatically determining one or more sell-out factors for each of the multiple airline flights based on information about prior instances of the airline flights selling out, and wherein the predicting of the optimal time to purchase airline tickets for an airline flight is further based on a predicted sell-out time for the airline flight, the predicted sell-out time being based at least in part on the determined sell-out factors for that airline flight.

[c3] 3. The method of claim 1 wherein a predicted future offered price for one of the identified airline flights is lower than the current offered price for the one airline flight, wherein the predicted optimal time to purchase an airline ticket for the one identified airline flight is at a later time corresponding to the predicted future offered price, and wherein the using of the predicted optimal airline ticket purchase times to advise a customer related to a current purchase of an airline ticket includes currently selling an airline ticket for the one identified airline flight to the customer at a price that is lower than the current offered price for that airline flight but at least as high as the predicted future offered price for that airline flight, and wherein the using of the predicted optimal airline ticket purchase times to advise the customer related to the current purchase of the airline ticket further includes delaying a purchase of that sold airline ticket from the unrelated airline ticket provider for that flight until the later time.

[c4] 4. The method of claim 1 wherein a predicted future offered price for one of the identified airline flights is higher than the current offered price for the one airline flight, wherein the predicted optimal time to purchase an airline ticket for the one identified airline flight is at a current time, and wherein the using of the

predicted optimal airline ticket purchase times to advise a customer related to a current purchase of an airline ticket includes notifying the customer that the current offered price for the one airline flight is a good buy such that the customer should purchase an airline ticket for the one identified airline flight at the current time.

[c5] 5. The method of claim 1 wherein one of the requests from a customer is to be alerted if prices for an indicated airline flight are predicted to increase, wherein at a later time a predicted future offered price for the indicated airline flight is determined to be higher than a price that is currently offered at the later time for the indicated airline flight, and wherein the using of the predicted optimal airline ticket purchase times to advise the customer related to a current purchase of an airline ticket includes alerting the customer at the later time to purchase an airline ticket for the indicated airline flight at that time.

[c6] 6. The method of claim 1 wherein a predicted future offered price for one of the identified airline flights is lower than the price currently offered for the one airline flight at a current time, wherein the predicted optimal time to purchase an airline ticket for the one identified airline flight is at a later time corresponding to the predicted future offered price, and wherein the using of the predicted optimal airline ticket purchase times to advise a customer related to a current purchase of an airline ticket includes notifying the customer at the current time to purchase the airline ticket at the later time.

[c7] 7. The method of claim 1 wherein a predicted future offered price for one of the identified airline flights is higher than the current offered price for the one airline flight, and wherein the using of the predicted optimal airline ticket purchase times to advise a customer related to a current purchase of an airline ticket includes currently offering to sell an airline ticket for the one identified airline flight to the customer at a current sales price and offering to provide at least a

partial refund if an actual future offered price for that airline flight is lower than the current sales price.

[c8] 8. The method of claim 1 wherein one of the requests from a customer is to pay a specified price for an indicated airline flight at an indicated time, the specified price being lower than a current offered price for the indicated airline flight at the indicated time, wherein a predicted future offered price for the indicated airline flight at the indicated time is at least as low as the specified price, and wherein the using of the predicted optimal airline ticket purchase times to advise a customer related to a current purchase of an airline ticket includes currently selling an airline ticket for the indicated airline flight at the indicated time to the customer at the specified price but delaying a purchase of that sold airline ticket from the unrelated airline ticket provider for that flight until a later time.

[c9] 9. The method of claim 1 wherein the multiple customer requests correspond to prior requests for which the customers have already purchased airline tickets at prior times, and wherein the using of the predicted optimal airline ticket purchase times to advise a customer is performed at a current time but in a manner as if the predicting of the future prices and the predicting of the optimal time were performed at those prior times, so as to determine at the current time if the customers could likely have completed the purchases of the airline tickets near the prior times but at lower prices.

[c10] 10. The method of claim 1 wherein multiple of the customer requests include requests to purchase airline tickets for an indicated airline flight at an indicated time, and including fulfilling those requests in an aggregate manner so as to hedge against price changes, the fulfilling including currently purchasing a subset of the requested airline tickets from the unrelated airline ticket provider for that flight and delaying purchasing of the other requested airline tickets from the unrelated airline ticket provider for that flight until a later time.

[c11] 11. The method of claim 1 wherein the organization is an airline that supplies airline tickets for airline flights of the airline, wherein the retrieved information about airline ticket prices that were previously offered to customers is for airline tickets from one or more unrelated airline ticket providers that are each a competitor airline, wherein the predicted future offered prices for one or more of the identified airline flights of a competitor airline are lower than the currently offered prices for those airline flights such that the predicted optimal time to purchase an airline ticket for those airline flights is at a later time, and wherein the using of the predicted optimal airline ticket purchase times to advise a customer related to a current purchase of an airline ticket includes immediately lowering current prices on one or more of the airline flights of the organization and notifying the customer that the current prices on the airline flights of the organization are lower than the currently offered prices for airline flights of one or more of the competitor airlines.

[c12] 12. The method of claim 1 wherein the using of the predicted optimal airline ticket purchase times to advise a customer related to a current purchase of one or more airline tickets is performed for a fee from the customer and/or from unrelated airline ticket providers that offer the tickets and/or from an intermediate seller from whom the one or more airline tickets can be acquired.

[c13] 13. The method of claim 1 including responding to each request from a customer for information about airline flight prices by providing at least one Web page to the customer that includes information about a current offered price for each of one or more of the identified airline flights that satisfy criteria in the request from the customer, and wherein the using of the predicted optimal airline ticket purchase times to advise a customer related to a current purchase of one or more airline tickets includes providing information as part of the Web page for the customer that provides advice regarding purchasing one or more of the identified airline flights at the current offered prices for those flights.

[c14] 14. The method of claim 1 wherein the method is further performed for other purchasable items distinct from airline tickets.

[c15] 15. The method of claim 1 wherein the automatically determined pricing factors for each of at least one of the multiple airline flights includes multiple of an amount of time before the airline flight, a time of year of the airline flight, a degree of availability of airline tickets for the airline flight, a day of week for departure and/or arrival of the airline flight, a class code for the airline flight, a fair basis code for the airline flight, whether a current day is an advance purchase day for the airline flight, and behavior of competitors.

[c16] 16. The method of claim 1 wherein the automatic determining of the pricing factors for the airline flights and/or the automatic predicting of the future prices that will be offered for identified airline flights and/or the automatic predicting of optimal times to purchase airline tickets for the identified airline flights includes using multiple of statistical-based learning, reinforcement-based learning, rule learning, machine learning, and ensemble-based learning.

[c17] 17. A computer-implemented method for using predictive pricing for items, the method comprising:

analyzing prior prices for each of one or more items to automatically determine patterns in changes in the prior prices that occur in a predictable manner;

automatically predicting that a current price for one of the items will change in the future based at least in part on at least one of the automatically determined price change patterns for the one item; and

automatically determining whether to accept the current price for the one item based at least in part on the automatically predicted future price change for the one item.

[c18] 18. The method of claim 17 wherein the one item has an associated expiration and/or use time, and wherein prices for the one item change based at least in part on a relationship between a current time and the associated time.

[c19] 19. The method of claim 17 wherein prices for the one item change under control of a supplier of the one item.

[c20] 20. The method of claim 17 wherein prices for the one item change in a controlled manner so as to maximize profit related to the one item.

[c21] 21. The method of claim 17 wherein prices for the one item change in a controlled manner based at least in part on one or more factors and/or algorithms, and wherein those factors and/or algorithms are not identified.

[c22] 22. The method of claim 21 wherein the analyzing of the prior prices for the one item further automatically determines at least one of the factors and/or algorithms, and wherein the automatic predicting that the current price for the one item will change is based at least in part on those determined factors and algorithms.

[c23] 23. The method of claim 17 wherein the automatic predicting that the current price for the one item will change includes identifying a predicted future price for the one item.

[c24] 24. The method of claim 17 wherein the automatic predicting that the current price for the one item will change includes identifying a predicted direction of the predicted future price change for the one item.

[c25] 25. The method of claim 17 wherein the automatic predicting that the current price for the one item will change includes identifying a predicted magnitude of the predicted future price change for the one item.

- [c26] 26. The method of claim 17 wherein the automatic predicting that the current price for the one item will change includes identifying a predicted time of the predicted future price change for the one item.
- [c27] 27. The method of claim 17 wherein the automatic predicting that the current price for the one item will change includes identifying a likelihood associated with the predicted future price change.
- [c28] 28. The method of claim 17 wherein the automatic predicting that the current price for the one item will change includes predicting whether the one item will be available at a future time.
- [c29] 29. The method of claim 17 including receiving a fee based on the automatic predicting that the current price for the one item will change.
- [c30] 30. The method of claim 17 including receiving a fee based on the analyzing of the prior prices for the items.
- [c31] 31. The method of claim 17 including receiving a fee based on information and/or functionality provided after the automatic determining of whether to accept the current price for the one item.
- [c32] 32. The method of claim 17 including receiving a fee in response to an action taken based at least in part on the automatic determining of whether to accept the current price for the one item.
- [c33] 33. The method of claim 17 wherein the predicted future price change for the one item would result in a price for the one item that is lower than a current price for the one item, and wherein the automatic determining of whether to accept the current price for the one item includes determining that it is preferable to not accept the current price.

[c34] 34. The method of claim 33 wherein the automatic determining of whether to accept the current price for the one item further includes causing the one item to currently be offered at a price that is lower than the current price.

[c35] 35. The method of claim 34 wherein the current price for the one item is offered by an external supplier, wherein the causing of the current offering of the one item at the lower price is performed independent of the external supplier, and including delaying any acquisition of the one item from the external supplier until a later time.

[c36] 36. The method of claim 33 wherein the automatic determining of whether to accept the current price for the one item further includes providing advice to a user to delay acquisition of the one item so as to wait for a lower price.

[c37] 37. The method of claim 33 wherein the automatic determining of whether to accept the current price for the one item further includes providing advice to a user to delay acquisition of the one item so as to wait until a later time at which it is predicted that the price for the one item will be lower.

[c38] 38. The method of claim 17 wherein the predicted future price change for the one item would result in a price for the one item that is higher than a current price for the one item, and wherein the automatic determining of whether to accept the current price for the one item includes determining that it is preferable to accept the current price.

[c39] 39. The method of claim 38 wherein the automatic determining of whether to accept the current price for the one item further includes providing advice to a user to accept the current price for the one item.

[c40] 40. The method of claim 39 wherein the automatic determining of whether to accept the current price for the one item is performed after a request

from the user, and wherein the provided advice to the user is part of an interactive response to the user.

[c41] 41. The method of claim 39 wherein the automatic determining of whether to accept the current price for the one item is performed independent of a current request from the user, and wherein the providing of the advice includes alerting the user regarding the advice based at least in part on previously obtained information about the user.

[c42] 42. The method of claim 38 wherein the automatic determining of whether to accept the current price for the one item further includes automatically acquiring the one item at the current price.

[c43] 43. The method of claim 38 wherein the automatic determining of whether to accept the current price for the one item further includes providing a price protection guarantee to a user based on future prices for the one item during a specified period of time not being above a specified price that is based on the current price.

[c44] 44. The method of claim 17 including receiving an indication from a user of a specified price for the one time, and wherein the automatic determining of whether to accept the current price for the one item further includes automatically accepting the specified price when it is above a predicted future price for the one item.

[c45] 45. The method of claim 17 further including comparing prior prices at which prior acquisitions of the one item occurred to alternative prices at which those prior acquisitions would have occurred if predictions for those prior acquisitions as to whether to accept those prior prices had been used, those predictions for those prior acquisitions based at least in part on the automatically determined price change patterns for the one item.

[c46] 46. The method of claim 17 wherein the automatic determining of whether to accept the current price for the one item is performed in response to an indication related to acquiring the one item, and wherein the automatic determining of whether to accept the current price for the one item further includes determining to aggregate the indicated acquiring with other acquisitions of the one item in such a manner as to use the aggregated acquisitions to hedge against price changes and/or to obtain at least some of the acquisitions under preferable conditions.

[c47] 47. The method of claim 17 wherein the one item is offered by an external third-party, and wherein the automatic determining of whether to accept the current price for the one item is performed as part of determining one or more conditions under which to offer another item that is a potential substitute for the one item.

[c48] 48. The method of claim 17 wherein the automatic determining of the patterns and/or the automatic predicting of the future price changes includes using one or more of statistical-based learning, reinforcement-based learning, rule learning, machine learning, and ensemble-based learning.

[c49] 49. The method of claim 17 wherein the items are each a ticket for an airline flight.

[c50] 50. The method of claim 17 wherein the items are each one or more of a .car rental, hotel rental, vacation package, cruise, gasoline, food product, jewelry, consumer electronic, book, CD, DVD, video tape, software, apparel, toy, game, automobile, ticket for a performance or event or occurrence, and furniture.

[c51] 51. The method of claim 17 wherein the items are each a service provided by one or more unrelated providers.

- [c52] 52. A computer-readable medium whose contents cause a computing device to use predictive pricing for items, by performing a method comprising:
- analyzing prior prices for each of one or more items to automatically determine factors that affect the prior prices in a predictable manner;
- automatically predicting future price information for one of the items based at least in part on at least one of the automatically determined price factors for the one item; and
- automatically determining an action to take based at least in part on a comparison of the current price for the one item to the automatically predicted future price information for the one item.
- [c53] 53. The computer-readable medium of claim 52 wherein the computer-readable medium is a memory of a computing device.
- [c54] 54. The computer-readable medium of claim 52 wherein the computer-readable medium is a data transmission medium transmitting a generated data signal containing the contents.
- [c55] 55. The computer-readable medium of claim 52 wherein the contents are instructions that when executed cause the computing device to perform the method.
- [c56] 56. The computer-readable medium of claim 52 wherein the contents include one or more data structures for use in the automatic predicting of future price information, the data structure comprising a multiplicity of entries, each entry corresponding to an item and containing information comprising automatically determined factors and/or patterns related to prior prices for that item for use in the automatic predicting of future price information for that item.

[c57] 57. A computing device for using predictive pricing for items, comprising:

a predictive price determiner system that is configured to analyze prior prices for each of one or more items to automatically determine information about changes in the prior prices that occur in a predictable manner and to automatically predict that a current price for one of the items will change in the future based at least in part on the automatically determined change information for the one item; and

a predictive price use system that is configured to automatically determine whether to accept the current price for the one item based at least in part on the automatically predicted future price change for the one item.

[c58] 58. The computing device of claim 57 wherein the predictive price determiner system consists of a means for analyzing prior prices for each of one or more items to automatically determine information about changes in the prior prices that occur in a predictable manner and for automatically predicting that a current price for one of the items will change in the future based at least in part on the automatically determined change information for the one item, and wherein the predictive price use system consists of a means for automatically determining whether to accept the current price for the one item based at least in part on the automatically predicted future price change for the one item.

[c59] 59. A computer-implemented method for using predictive pricing for airline tickets, the method comprising:

analyzing prior prices for each of one or more airline flights to automatically determine patterns in changes in the prior prices that occur in a predictable manner;

automatically predicting that a current price for one of the airline flights will change in the future based at least in part on at least one of the automatically determined price change patterns for the one airline flight; and

when the predicted future price change for the one airline flight would result in a price for the one airline flight that is lower than a current price for the one airline flight, providing advice to a user to delay acquisition of a ticket for the one airline flight so as to wait for a lower price.

[c60] 60. A computer-implemented method for using predictive pricing for airline tickets, the method comprising:

analyzing prior prices for each of one or more airline flights to automatically determine patterns in changes in the prior prices that occur in a predictable manner;

automatically predicting that a current price for one of the airline flights will change in the future based at least in part on at least one of the automatically determined price change patterns for the one airline flight; and

when the predicted future price change for the one airline flight would result in a price for the one airline flight that is higher than a current price for the one airline flight, notifying a user that current acquisition of a ticket for the one airline flight is preferable.

[c61] 61. A computer-implemented method for using predictive pricing for airline tickets, the method comprising:

analyzing prior prices for each of one or more airline flights to automatically determine patterns in changes in the prior prices that occur in a predictable manner;

automatically predicting that a current price for one of the airline flights will change in the future based at least in part on at least one of the automatically determined price change patterns for the one airline flight, the prices at which the one airline flight is offered being specified by an external supplier; and

when the predicted future price change for the one airline flight would result in a price for the one airline flight that is lower than a current price for the one airline flight, currently offering a ticket for the one airline flight at a price that is lower than the current price specified by the external supplier but that is not lower

than a likely future price for the one airline flight after the predicted future price change.

[c62] 62. A computer-implemented method for using predictive pricing for airline tickets, the method comprising:

analyzing prior prices for each of one or more airline flights to automatically determine patterns in changes in the prior prices that occur in a predictable manner;

automatically predicting that a current price for one of the airline flights will change in the future based at least in part on at least one of the automatically determined price change patterns for the one airline flight; and

when the predicted future price change for the one airline flight would result in a price for the one airline flight that is higher than a current price for the one airline flight, offering to a user a price protection guarantee related to acquisition of a ticket for the one airline flight at the current price.

[c63] 63. A computer-implemented method for using predictive pricing for airline tickets, the method comprising:

analyzing prior prices for each of one or more airline flights to automatically determine patterns in changes in the prior prices that occur in a predictable manner;

automatically predicting that a current price for one of the airline flights will change in the future based at least in part on at least one of the automatically determined price change patterns for the one airline flight; and

when the predicted future price change for the one airline flight would result in a price for the one airline flight that is higher than a current price for the one airline flight, automatically acquiring at least one ticket for the one airline flight on behalf of a user.

[c64] 64. A computer-implemented method for using predictive pricing for airline tickets, the method comprising:

analyzing prior prices for each of one or more airline flights to automatically determine patterns in changes in the prior prices that occur in a predictable manner;

automatically predicting that a current price for one of the airline flights will change in the future based at least in part on at least one of the automatically determined price change patterns for the one airline flight; and

when the predicted future price change for the one airline flight would result in a price for the one airline flight that is lower than a current price for the one airline flight, and after receiving an offer from a user of a specified price for a ticket for the one airline flight, automatically accepting the specified price when it is above a predicted lower future price for the one airline flight.

[c65] 65. A computer-implemented method for using predictive pricing for airline tickets, the method comprising:

analyzing prior prices for each of one or more airline flights to automatically determine patterns in changes in the prior prices that occur in a predictable manner;

comparing prior prices at which prior acquisitions of one of the airline flights occurred to alternative prices at which those prior acquisitions would have occurred if predictions for those prior acquisitions as to whether to accept those prior prices had been used, those predictions for those prior acquisitions based at least in part on the automatically determined price change patterns for the one airline flight; and

providing an analysis of whether the alternative prices based on the use of those predictions are preferable to the actual prior prices.

[c66] 66. A computer-implemented method for using predictive pricing for airline tickets, the method comprising:

analyzing prior prices for each of one or more airline flights to automatically determine patterns in changes in the prior prices that occur in a predictable manner; and

automatically predicting that a current price for one of the airline flights will change in the future based at least in part on at least one of the automatically determined price change patterns for the one airline flight; and

after receiving multiple indications that are each to acquire at least one ticket for the one airline flight, determining to aggregate at least some of the indicated ticket acquisitions in such a manner as to use the aggregated acquisitions to hedge against price changes and/or to obtain at least some of the acquisitions under preferable conditions.

[c67] 67. A computer-implemented method for using predictive pricing for airline tickets, the method comprising:

analyzing prior prices for each of one or more airline flights to automatically determine patterns in changes in the prior prices that occur in a predictable manner;

automatically predicting that a current price for one of the airline flights will change in the future based at least in part on at least one of the automatically determined price change patterns for the one airline flight, the one airline flight being offered by an external third-party; and

determining one or more conditions under which to offer tickets for another airline flight that is a potential substitute for the one airline flight based at least in part on the predicted future price change for the one airline flight.